

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently amended) An apparatus for measuring heat dissipation of a target heating element, comprising:

a reference heating element for emitting heat;

a control unit; and

a pair of temperature measuring devices for measuring representative temperatures of the target and the reference heating ~~element~~elements and transmitting to the control unit signals indicating the representative temperatures,

wherein the target heating element emits heat by itself,

wherein the reference heating element has an outer configuration and sizes substantially identical to those of the target heating element, and

wherein the control unit controls the reference heating element such that the representative temperature of the reference heating element becomes substantially identical to that of the target heating element.

2. (Original) The apparatus of claim 1, wherein the reference heating element is provided with an electrical heater controlled by the control unit.

3. (Currently amended) The apparatus of claim 2, wherein the control unit

compares the representative temperatures of the target and the reference heating ~~element~~elements and calculates heating value of the reference heating element by using a power supplied to the electrical heater when the representative temperatures are substantially equal to each other.

4. (Currently amended) ~~The apparatus of claim 3, further comprising:~~ An apparatus for measuring heat dissipation of a target heating element, comprising:

a reference heating element for emitting heat;

a control unit;

a pair of temperature measuring devices for measuring representative temperatures of the target and the reference heating elements and transmitting to the control unit signals indicating the representative temperatures;

a first vessel for accommodating the target heating element;

a second vessel for accommodating the reference heating element;

a first duct connected to the first vessel;

a second duct connected to the second vessel; and

a flow generator for drawing heat carrying fluids in the first and the second ~~vessel~~vessels through the first and the second ~~duct~~ducts at a same rate,

wherein the reference heating element has an outer configuration and sizes substantially identical to those of the target heating element, and wherein the control unit controls the reference heating element such that the representative temperature of the reference heating element becomes substantially identical to that of the target heating element,

wherein the reference heating element is provided with an electrical heater controlled by the control unit,

wherein the control unit compares the representative temperatures of the target and the reference heating elements and calculates heating value of the reference heating element by using a power supplied to the electrical heater when the representative temperatures are substantially equal to each other, and

wherein the temperature measuring devices are installed at substantially corresponding locations in the first and the second ducts, respectively, and measures temperatures of the heat carrying fluids in the first and the second duct as the representative temperatures, and wherein the first and the second vessels are substantially identical to each other in geometry, and the first and the second duct are substantially identical to each other in geometry.

5. (Currently amended) The apparatus of claim 4, wherein the heat carrying fluids in the first and the second ~~duct~~ducts are air.

6. (Currently amended) ~~The apparatus of claim 3,~~ An apparatus for measuring heat dissipation of a target heating element, comprising:

a reference heating element for emitting heat;

a control unit; and

a pair of temperature measuring devices for measuring representative temperatures of the target and the reference heating elements and transmitting to the control unit signals indicating the representative temperatures;

wherein the reference heating element has an outer configuration and sizes substantially identical to those of the target heating element, and wherein the control unit controls the reference heating element such that the representative temperature of the reference heating element becomes substantially identical to

that of the target heating element,

wherein the reference heating element is provided with an electrical heater controlled by the control unit,

wherein the control unit compares the representative temperatures of the target and the reference heating elements and calculates heating value of the reference heating element by using a power supplied to the electrical heater when the representative temperatures are substantially equal to each other, and

wherein the temperature measuring devices are attached on surfaces of the target and the reference heating elements and measure average surface temperatures of the target and the reference heating elements as the representative temperatures.

7. (Original) The apparatus of claim 6, wherein the temperature measuring devices are a thermocouple.

8. (Currently amended) ~~The apparatus of claim 3, further comprising:~~ An apparatus for measuring heat dissipation of a target heating element, comprising:

a reference heating element for emitting heat;

a control unit;

a pair of temperature measuring devices for measuring representative temperatures of the target and the reference heating elements and transmitting to the control unit signals indicating the representative temperatures;

a duct for accommodating the target and the reference heating element;
and

a pair of fins for being in contact with or being attached to the target and the

reference heating ~~element~~ elements, respectively,

wherein the reference heating element has an outer configuration and sizes substantially identical to those of the target heating element, and wherein the control unit controls the reference heating element such that the representative temperature of the reference heating element becomes substantially identical to that of the target heating element,

wherein the reference heating element is provided with an electrical heater controlled by the control unit,

wherein the control unit compares the representative temperatures of the target and the reference heating elements and calculates heating value of the reference heating element by using a power supplied to the electrical heater when the representative temperatures are substantially equal to each other, and

wherein the temperature measuring devices measure temperatures of the fins at substantially corresponding locations of the fins, respectively as the representative temperatures.

9. (Original) The apparatus of claim 8, further comprising a flow generator for supplying a heat carrying fluid into the duct.

10. (Currently amended) A method for measuring heat dissipation of a target heating element, comprising the steps of:

detecting and comparing representative temperatures of the target heating element and a reference heating element for emitting heat;

controlling the reference heating element such that the representative temperatures of the target and the reference heating elements become

substantially identical to each other; and

~~determining a heating value of the reference heating element as the heat dissipation of the target heating element~~ measuring the heat dissipation of the target heating element by using a heating value of the reference heating element when the representative temperatures of the target and the reference heating ~~element~~ elements are substantially identical to each other,

wherein the reference heating element has an outer configuration and sizes substantially identical to those of the target heating element.

11. (Original) The method of claim 10, wherein the representative temperature of the target heating element is measured from a heat carrying fluid which has flown past the target heating element and the representative temperature of the reference heating element is measured from a heat carrying fluid which has flown past the reference heating element.

12. (Original) The method of claim 10, wherein the representative temperature of the target heating element is an average surface temperature of the target heating element, and the representative temperature of the reference heating element is an average surface temperature of the reference heating element.

13. (Currently amended) The method of claim 10, wherein the representative temperatures of the target and the reference heating ~~element~~ elements are measured at substantially corresponding locations of fins, which are in contact with or attached to the target and the reference heating element, respectively.

14. (Currently amended) An apparatus for measuring heat dissipation of a target heating element, comprising:

means for detecting representative temperatures of the target heating element and a reference heating element; and

means for comparing the representative temperatures, controlling the reference heating element such that the representative temperatures become substantially identical to each other, and determining heating value of the reference heating element as the heat dissipation of the target heating element when the representative temperatures are substantially identical to each other,

wherein the target heating element emits heat by itself, and

wherein the reference heating element has an outer configuration and sizes substantially identical to those of the target heating element.